DAL-ACE

DALLAS ATARI COMPUTER ENTHUSIASTS

VOLUME 5 ISSUE 11 NOVEMBER 1984

PRESIDENT'S PERSPECTIVE

I suppose that I am getting a little gun-shy about repeating Atari rumors. But, when there is no official news, rumors are the best anyone has to offer. There is one factual item to report: Atari failed to make a promised appearance at the MACE (the largest ACE in the U.S.) Atari Con show. Atari had promised to show up and was given the main booth, the centerpiece of the Conference. However, the promise was made before the Tramiel purchase and those that were supposed to show up no longer work for Atari! The day before the show opened, Atari announced that they would not be able to attend, leaving a gaping hole in the center of the main floor of the conference (figuratively speaking). No wisecracks please! If I can refrain, then you should also (but, I'm biting my tongue).

Rumors about Atari abound in all the trade journals. The one presented below came from the September 21st (1984) issue of *InfoWorld* in the "NEWS" column.

> "**Rumors, we got rumors:** Try this one on for size. The aforementioned Atari has a warehouse full of machines - 200,000 computers and 5 million game machines - and is planning a blowout sale for Christmas that will put the first nail in Commodore's coffin: game machines for $30 and Atari 800XLs for $99. Could it be true? From Taiwan, where he's touring the Far East locking up manufacturing capacity, Sam Tramiel claims that Atari has commitments for its entire inventory and production between now and Christmas, and expects to be in the black before New Year's day. We hear cheering at K mart, curses at Commodore."

Quite frankly, I wouldn't hold my breath for a $99 800XL! I personally predict that $150 will the lowest price we will see on the 800XL. And that is a REAL BARGIN! Yes, I'll probably have another one before the year is out.

TOYS FOR TOTS!

Incredible as it may seem, December is just around the corner. Yes, the December meeting will be a **TOYS FOR TOTS** Computer Fair! We will have special games, door prizes, demonstrations, and fun for all! The price of addmission will a toy or $3.00 cash. The cash will be converted to toys and all contributed to the annual Toys for Tots campaign! Urge all of your friends to come and join in the fun. The fair will start at 12:00 noon and go till 5:00 P.M. We are urging all the vendors to have a Holiday Sale, so bring your shopping lists!

VOLUNTEERS

Calling all volunteers! Call Jim Chaney (231-4402) or Doug Verkuil (462-0843) to volunteer your services for the Toys for Tots Computer Fair. We will need all the help that we can get. We need at least 20 volunteers to man the door and the game tables! Call as soon as possible!! We need YOU!

NEW OFFICERS

Election of new club officers in just around the corner (February meeting). The proposed slate of officers will be published in the January issue of the Newsletter. Now is the time for you to submit your name (or a friend's name) as a canidate for office. Simply write the name and office on a slip of paper and hand it to any of the current officers. We need these names prior to November 15th for proper consideration. DAL-ACE has a great future and we need good leadership.

NUMERIC KEYPAD

I have just received a copy (source and object code) of a "READ" routine for the Atari Numeric Keypad. I will be happy to share it with anyone with a codeless keypad (phone 231-4402). The machine language routine loads in page six and converts the keypad to "digit" readout. If there is enough demand, we can add this to our next Disk Library publication.

RESPECTFULLY .... Jim Chaney

EDITOR'S STRING$

Next months meeting on December 1st will be DAL-ACE's oportunity to give someting to our community with TOYS FOR TOTS. This is a chance to bring your whole family even the non-computer members. Admission is one new toy or $3. The club needs your help and attendence for this project (the operative word here is "help"), so please volunteer.

Credit for the "Christmas Tree" on page 15 goes to to Jim Chaney. A very clever idea and I sure some hard work.

Credit for this month's front cover graphics goes to John Henson. I understand the graphics dump he used is only eight (8) lines of code. Is this possible? I'd sure like to hear (and see) more about it.

I'm personally happy to see more contributions of programs and utilities to this months newsletter. Things we could use: reviews of all the SynSeries programs and more articles with code.

JOYSTICK CHAMPIONSHIP

Last months newsletter contain a game written by Jeff Golden titled "GLORY CALLS" and a challenge to use this game to determine the JOYSTICK CHAMPIONSHIP of DAl-ACE. Well this month we only had two entrants Mark Maxham 13,200 points and your editor with 800 points. I know that there are members that can do better than that. Who will be the DAL-ACE JOYSTICK CHAMPION in December?

SPECIAL ANNOUNCEMENT

DECEMBER MEETING UPGRADED TO EXTRAVAGANZA STATUS

DAL-ACE TO SPONSOR COMPUTER FAIR

BENEFITS GO TO

TOYS FOR TOTS

* * *

MARK YOUR CALENDAR NOW!
DECEMBER 1ST IS THE DATE!
12:00 TO 5:00 IS THE TIME

* * *

ATTEND UPGRADE '84!!

IN DECEMBER WE WILL NOT BE HAVING OUR USUAL EXCELLENT, MARVELOUS, FANTASTIC MEETING. INSTEAD, WE ARE UPGRADING IT TO A BENEFIT COMPUTER FAIR WITH ALL PROCEEDS GOING TO "TOYS FOR TOTS". THIS EVENT WILL BE SO SPECTACULAR THAT THE EXECUTIVE COMMITTEE HAS USED 10 MEGABYTES OF MEMORY IN THE FIRST STAGE OF PLANNING!!

ADMISSION: 1 TOY

(NEW TOY OF $3.00 VALUE OR =CASH)

(SEE INSIDE BACK COVER FOR MORE DETAILS)

*** SOFTWARE REVIEW ***

by John Pellet

F-15 STRIKE EAGLE

F-15 STRIKE EAGLE is the latest and greatest program from MicroProse Software (who brought you Hellcat Ace, Floyd of the Jungle, and others). It is a machine language program simulating modern air combat. The disk is protected and requires that the user input one of sixteen authentication codes supplied in the documentation (the Flight Operations Manual). This should drastically cut down on indiscriminate copying since some documentation would also be required. Seems like a very good approach to me.

The program boots in and then presents a menu of seven scenarios from the disk: 1) Libya - 1981, 2) Egypt - 1973, 3) Haiphong - 1972, 4) Syria - 1984, 5) Hanoi - 1972, 6) Iraq - 1981, and 7) Persian Gulf - 1984, in increasing order of difficulty. After the user selects one, the program asks for an authentication code as described above. Then, its on to trying to stay alive. You get to consider simultaneous problems involving your aircraft's performance envelope, bomb targets, heat-seeking and radar-homing SAM's (surface-to-air missiles), heat-seeking air-to-air missiles, and multiple airborne targets. It sounds confusing and it is. As it says in the Flight Operations Manual, "This simulation accurately rewards the pilot who masters these skills." Your do have some help, however. Your Heads-Up-Display lets you know at a glance parameters like: airspeed, altitude, gun sighting, missile (short and medium range) sighting, and bomb sighting, target designation (which of several potential enemy aircraft is the primary target). Your Horizontal Situation Display shows a map which depicts the mission target(s) and terrain features. Your Radar-Electronic Warfare Display shows the ground and airspace around your plane based on your radar and any radar or heat sources your electronics gear has detected. Your Weapon Status Display shows your inventory of short and medium range missiles, bombs, and fuel drop tanks.

The basic game entails flying a specific mission with concrete objectives and surviving to return to your base. Mission objectives usually include items like bombing airfields, SAM sites, and command posts plus engaging various Soviet aircraft, including MIG-21's, MIG-23's, and Su-22's. It is not usually a big problem to keep the aircraft in the air (unlike Flight Simulator II) but there are considerably more distractions, in the form of missiles and aircraft that want to KILL you. Also, the aircraft controls seem more relaxed than in Flight Simulator II and very similar to those in Hellcat Ace. Based on a very limited exposure to the program, it looks like the flight simulation factors are less complex than in Flight Simulator II but the program executes noticeably faster. The screen graphics also seem less complex than in Flight Simulator II but they look better within the limits of the Atari, to me.

In summary, while F-15 STRIKE EAGLE may be a slightly less sophisticated simulation than Flight Simulator II, it is much more of a game. And a GREAT game it is. I recommend it highly to game freaks of all kinds and especially those who, like myself, have been impressed by earlier MicroProse offerings.

F-15 STRIKE EAGLE by MicroProse Software is available from MCP for under $28 including tax.

*** SOFTWARE REVIEW ***

by John Pellet

SPACE KNIGHTS

SPACE KNIGHTS from Reston Publishing Co., Inc. is a great new concept in software packaging. Imagine, if you will, a science fiction book packaged with a disk containing several games based on the situations encountered by the major characters in the book! And, at a price around that of a good hardback or adventure game! I was intrigued and impressed by the concept. BUT there were some slight (?) problems with SPACE KNIGHT's execution of the concept.

First, the 150+ page package contains less than 100 pages of large-type story (the rest devoted to game instructions) and, in my opinion, the story is a sample of the worst sort of space-opera. All action, no plot, no character consistency, and an "all right let's wind this up in the next paragraph or two" attitude that is very blatant. While I did not expect an Pulitzer prize winner, neither did I expect a comic book.

Second, the book is the best part of the package. At least it provides lots of opportunities to laugh. All nine games on the protected disk (who would bother?) require BASIC (and will NOT run under BASIC XL) - a fact not mentioned anywhere on the external packaging. And they are not nearly as good as most of the games currently being published in ANTIC or ANALOG. Come to think of it, I laughed at most of those games too. The best thing I can say is that a couple of them would have been OK two or three years ago.

Third, to me at least, the games do not correlate well with action in the book.

Oh well, maybe next time. If you like sci-fi and want to try some of the puzzles encountered by your favorite characters, better wait for INFOCOM's forthcoming adaptation of "Hitchhiker's Guide to the Galaxy" by Douglas Adams due in November. At least the graphics will be better.

SPACE KNIGHTS from Reston Publishing was purchased at MCP. I have a copy I'll let go CHEAP!

REVIEW

By BoB Felice

SOFTWARE REVIEW: Lode Runner,
Broderbund, $35.00 Category: Climbing & Jumping Game.
GRAPHICS: Good SOUND: Good USER INTERFACE: Excellent

Lode Runner is a climbing and jumping game. If you liked Donkey Kong, Q*Bert, and Miner 2049er, you will like Lode Runner. In fact, you will love Lode Runner, because someone finally did a climbing and jumping game right. The object is to clear the screen of all of the gold bars. To do this, you use the joystick to navigate a structure composed of ladders, horizontal bars, and walls. Naturally, there are several baddies who try to catch you. For defense, you have a lazer pistol, which can bore holes in the soft floor. (There are no offensive weapons). Anyone who falls into a hole becomes trapped. (Eventually, the hole fills up, squishing anyone unlucky enough to be caught in it.) Digging a hole is a good way to get free of a guard, but if it is you who falls into the hole, you will lose a life.

If that were all there was to Lode Runner, you would have just another game. But there is much more: for a start, there are (count them) 150 different screens to explore! And you can get to any of them at any time -- no need to solve the first 149 to get to number 150. Then, there are the "cheat" keys: if the game is too fast for you, you can slow it down. If you are running behind on lives, you can give yourself some more.

Finally, Doug Smith, the inventor of the game, included in Lode Runner the very set of tools that he used to make all of those screens. That's right, after you get tired of playing all of the screens that come with Lode Runner, you can make up your own!

Are there any problems with Lode Runner? Yes. It's from Broderbund, and that means it is copy-protected within an inch of its life. In my case, the game wouldn't load (again. Just like David's Midnight Magic. Also from Broderbund). I sent the disk back to Broderbund, and they sent a replacement. It also wouldn't load. Then I read in ANTIC that with some disk drives you have to depress the "BREAK" key after the title page comes up to complete the load. This was something that Broderbund was unaware of. I have had no problems loading the game since I learned the "secret" to Lode Runner. And that aside, I would recommend it heartily. A very nice game.

DAL-ACE
COMPUTER FAIR
ADMISSION: 1 TOY
(NEW TOY OF $3.00 VALUE OR =CASH)

23 MATCHES

Can you beat your ATARI at "23 Matches"? Type this program in and find out. I tried for about 15 minutes and did'nt win once. I'll try again when I'm not trying to get the Newsletter together. Editor

```
100 REM ***  23 MATCHES
110 REM ***
120 REM ***  ADAPTED TO THE ATARI
130 REM ***  BY BO DAVIS OF DAL-ACE
140 REM ***  FROM A PROGRAM BY
150 REM ***  BOB ALBRECHT
160 REM
170 REM
180 PRINT CHR$(125);
190 PRINT "Let's play 23 MATCHES.  We start with"
200 PRINT "23 matches.  You move first.  You may"
210 PRINT "take 1, 2 or 3 matches.  Then I move."
220 PRINT "I may take 1, 2 or 3 matches.  You"
230 PRINT "move, I move and so on.  The one who"
240 PRINT "has to take the last match loses."
250 PRINT "Good luck and may the best computer"
260 PRINT "(ha ha) win."
270 M=23
280 REM ***  THE HUMAN MOVES  ***
290 PRINT
300 PRINT "There are now ";M;" matches."
310 PRINT
320 PRINT "How many do you take";
330 INPUT H
340 IF H>M THEN 600
350 IF H<>INT(H) THEN 600
360 IF H<=0 THEN 600
370 IF H>=4 THEN 600
380 M=M-H
390 IF M=0 THEN 530
400 REM ***  THE COMPUTER MOVES  ***
410 IF M=1 THEN 560
420 R=M-4*INT(M/4)
430 IF R<>1 THEN 460
440 C=INT(3*RND(0))+1
450 GOTO 470
460 C=(R+3)-4*INT((R+3)/4)
470 M=M-C
480 IF M=0 THEN 560
490 PRINT
500 PRINT "I took ";C;"...";
510 GOTO 300
520 REM ***  SOMEBODY WON  ***
530 PRINT
540 PRINT "I won!!!  Beter luck next time."
550 GOTO 270
560 PRINT
570 PRINT "O.K.  So you won.  Let's play again."
580 GOTO 270
590 REM ***  THE HUMAN CHEATED!  ***
600 PRINT "You cheated!  But I'll give you"
610 PRINT "another chance."
620 GOTO 310
```

A PUBLISHED MEMBERSHIP LIST
ANOTHER VIEW

Dear Editor:

As a relatively new member of DAL-ACE and a rank amateur computer user, I would like to respond to your call for editorial contributions to the Newsletter by responding to Dave Gillen's article on privacy.

I think everything Dave said is correct and it sounds like he is very knowledgeable about computer access to what the average layman probably considers secret information. I would absolutely not support any mandatory inclusion of a member's name, phone number, or address on a members' roster. I think having your name on such a list must be entirely voluntary.

On the other hand, however, my fears of invasion of privacy are not nearly as great as those of Dave's because I beleive the privacy he seeks is impossible to achieve and any further intrusion into that realm caused by an available DAL-ACE members' roster is minimal at most.

For example, probably not many people have considered that anyone with access to a telephone and a pair of binoculars can get the names and addresses of everyone who drives their car to the DAL-ACE meetings. One can observe the entrance to the Civic Center parking lot and note the license numbers of cars entering the lot. It then takes only a call to the Bureau of Vehicle ID for Dallas County or for the whole state in Austin to obtain a name and address for each license number in a few seconds via DPS computers. These are public records, and available to anyone who calls.

I think burglary is a legitimate concern; yet have you tried to sell an Atari 400 or 800, or a RANA disk drive at the club meetings lately, or by advertising publicly? I have and there's not much market for used hardware, even though we value our equipment very highly as it was expensive to buy originally and is expensive to replace. I think if we were an National Rifle Association chapter or a 35MM camera club, this reasoning might be more applicable, because of the ease with which guns and cameras can be converted to cash.

The financial standing of DAL-ACE members can be much more easily determined in other ways. Some of us flaunt our possessions by driving new cars, or expensive foreign cars. These are a much better indication of our financial position than our membership in an Atari club, because anyone can join our club even if they haven't yet bought any hardware or software.

Even more revealing than the cars we drive are the homes we occupy and the neighborhoods we live in. Most of us have telephones and are listed in the most widespread roster of all, the telephone book. Having an unlisted number offers little protection because of secondary sources of information such as the "CITY DIRECTORIES" that are published by private firms. If a potential thief knows an address but no name or phone number,(for example by following one of us home from a DAL-ACE meeting), he can look up the address in the CITY DIRECTORY and put a name and phone number with that address. Although many honest people do not know of these resources, I feel fairly certain that any thief on the street knows about all or most of them.

Other sources of names of computer enthusiasts are the commercial mailing lists made up and sold by companies in that type of business. They are experts at this and have many widespread and well-placed sources of information for which they pay hefty sums of money. If you subscribe to ANALOG or ANTIC or other computer magazine, or if you've ever ordered hardware or software from a mail order firm (and who hasn't) your name probably went on a list right away. If you've ever used MasterCard or Visa to purchase a particular type of luxury item, the credit card company and/or the merchant may have sold your name to a mailing list company.

You may be totally convinced by now that a professional thief is lurking down the alley waiting for you to go to work or on vacation so he can steal your computer setup. Yet, if you follow the guidelines set up by your local police department you can reduce the potential for such a burglary enormously. These are usually simple and reasonable, such as locking doors, windows, and garage doors.

I don't believe the DAL-ACE roster is going to have much bearing on our privacy in today's technological age. On the other hand it is good to have for several reasons, not the least of which is that I want to be on the mailing lists of makers of software and hardware because this is one means of becoming educated as to what new products are available for home computers. I also haven't been a member long enough to become personally acquainted with a lot of the other members. If I have a programming problem or hardware problem some evening, it would be nice to know what DAL-ACE members live close enough to me to call them up and make a short trip over to their house for advice. It's also useful if you've seen something for sale at a DAL-ACE meeting that you are interested in, or bought something at the meeting and need to call the seller but only remember part of his name, or only have his description. You don't have to wait several weeks or months until you both are at the same meeting to contact him if you can find him on the roster, or find someone on the roster who knows him.

Therefore I support having a club membership roster available to club members periodically and to other parties such as manufacturers and dealers. I wouldn't want any copies mailed to the county jail or the state penitentiary but other than that, I have no objections. I suggest the number of members whose names were excluded be be printed so we can get a true idea of the size of membership.

Sincerely,

Mike Caddell

"STAR WARS -THE ARCADE GAME"
For your ATARI Home Computer
Software Review by Edward B. Mueller III

RATINGS:

Challenge	A
Depth	C
Documentation	B
Controlability	B
Skill	A
Value	A
Creativity	C
Interest	B
Support	A
Concept	B
Graphics	A
Overall	A

"StarWars - The Arcade Game" is the home version of the popular arcade game. You take the place of Luke Skywalker, leading the rebel allies in a last ditch attempt to thwart the Empire. The game comes in cartridge form and runs on all Atari home computers. It requires one joystick. The game's perspective is first person: you control your fighter as you would an airplane. Both flying and targeting are performed with the joystick, so control is somewhat jerky at times, but you can still target objects quickly.

The game has many distinct levels of play, but you must start at level one, two, or three. At higher levels, you are attacked more aggresively and the catwalks in the trench take on more challenging forms. It is somewhat frustrating to play at one difficulty level, only to have to start the next game at an easier one.

Your fighter has shields which protect your craft from fireballs and other obstacles. Each time you are hit by a fireball, you lose a shield. When you are hit after you lose your last shield, your ship is destroyed and the game ends. You begin the game with nine shields and are awarded with three bonus shields each time you destroy the Death Star. However, you may not accumulate more than nine shields at any one time.

You receive points for shooting fireballs, TIE fighters, and lasertower tops. You receive "bigpoints" for destroying the Death Star, shooting all laser tower tops, and using the Force. The documentation never explains exactly what the Force is or how to use it. To use the Force, maneuver down the trench without firing your guns except to shoot your torpedoes down the exhaust port. This strategy is highly recommended. You have quite a bit of room with which to maneuver in the trench, and it becomes easier to avoid the fireballs than to shoot them. The bonus points you receive for doing so are substantial. The documentation is clearly written, if not a bit sparse. An explanation of the game is given along with a description of the scoring, but no usable strategy tips are provided. The manufacturer, Parker Bros., does appear to stand behind the product as they provide a 180 day limited warranty with the game. They even give an address to write to and toll-free number to call should you have any difficulty or problems with the game.

The realism of the illusion exhibited by the game is impressive. The animation is quick and smooth. The laser towers grow as you get closer to them, and the catwalks in the trench move according to your controls. The display seems realistic and you can predict when you are doomed to run into a catwalk. I even find myself ducking whenever I get to close to one.

As for strategy, I suggest playing defensively. When under attack by the TIE fighters, try to shoot their fireballs first. Protect your ship before attacking others. The same strategy also applies when attacking the laser towers, though the fireballs seem tougher to avoid. Try to shoot all of the laser tower tops if you can for the bonus, but don't attempt it if you stand the chance to lose many shields. The catwalks always follow the same patterns for a given level, so a good memory helps here. Don't shoot the fireballs while in the trench or else you will lose the bonus points for using the Force. Remember, you get three bonus shields after destroying the Death Star, so if you don't lose more than three shields in one round, you can play forever.

Overall, this game is very well put together. The illusion of flight in space and over the Death Star is very realistic. The animation is smooth with no flicker. The game play is challenging enough at higher levels to allow for many hours of enjoyable play. Parker Bros, has created a winner here -- I recommend it.

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CIRCLES and ELLIPSES in BASIC

by Jeff Golden

Listing 1 provides a subroutine that can be used to draw circles and ellipses with an ATARI BASIC program.

To draw a circle, set up the desired graphics mode, specify the location of the center point with variables X, and Y, set the radius of the circle using variable R, and then do a GOSUB CIRCLE. GOSUB CIRCLE takes you to line 320.

The pixel, on an ATARI TV screen, is not a perfect square. It is slightly taller than it is wide. The difference between the height and width can also vary between different TV sets, depending upon the setting of the height, width, and linearity controls.

The circle routine must compensate for this difference by factoring in a value that represents the aspect-ratio of the screen. Line 320 sets the variable AR to 0.846. AR is then used to adjust the vertical dimensions of the circle so that the resulting circle is as high as it is wide, when measured on the screen.

If we had not used AR to adjust the vertical axis, then we would have drawn an oval. This is not all bad. Sometimes you may want an oval. Guess what happens when you set AR to some other value, and then do a GOSUB to line 340. This bypasses the AR setting for a circle, and you get an ellipse.

Furthermore, with this subroutine, ellipses do not have to lie flat and square to the X and Y axes. They can be tilted by introducing a factor called TILT.

To draw a tilted ellipse with the code in Listing 1, set X and Y to the center point, set R to the length of the radius, set AR to the desired aspect-ratio, set TILT to the desired tilt, and do a GOSUB ELLIPSE, (line 340).

The ATARI BASIC XIO FILL command only works with rectangles and trapezoids. You could fill your circular shapes by drawing concentric circles using the listing 1 code, however this would be very slow.

Listing 2 provides a more complicated routine that has the capability of both plotting and then filling in a circle with color. It can also fill the space between two concentric circles to form a tire shape.

Listing 2 is used the same way as listing 1. You set the X, Y, and R variables. Listing 2 also has one additional variable, R2. When you are drawing a tire shape, R2 is used to specify the radius of the inner circle. Set R2 to 0 when you want to fill the entire circle. After setting the variables, you can do a GOSUB CIRCFILL.

If you set AR and TILT, you can also do a GOSUB ELIPFILL to draw a filled ellipse. Note that tilted ellipses may not fill perfectly due to variations in the plots of the angled DRAWTO commands. A few pixels may be left blank. They can be filled in with individual PLOTs. The routine uses horizontal DRAWTOs for the circles and non-tilted ellipses, so these shapes do not have this problem.

Perhaps one of the mathematical geniuses, out there, would like to take up the challenge of keeping the DRAWTOs horizontal while keeping track of the aspect-ratio and the tilt of two concentric tilted ellipses. I don't have anymore time to spend on it, myself.

Listing 3 is designed to act as a tutorial. As each shape is drawn, the lines containing the input to the subroutines are listed in the text window. As you can see, using the subroutines is much easier than it may first appear.

Have fun drawing circles. They add a whole new dimension to ATARI BASIC graphics.

Listing 1:

```
100 CIRCLE=320:ELLIPSE=340
120 CIRCFILL=680:ELIPFILL=700
140 GOTO 1000:REM GOTO USER CODE ***
160 REM
180 REM ***  CIRCLE SUB-ROUTINE  ***
200 REM ***  X,Y LOCATES CENTER  ***
220 REM ***  R   EQUALS  RADIUS  ***
240 REM ***  AR = ASPECT-RATIO   ***
260 REM ***  TILT = -0.5 TO 0.5  ***
280 REM ***  SET AR & TILT GOSUB ***
300 REM ***  340 FOR ELLIPSE     ***
320 AR=0.846:TILT=0:REM CIRCLE ENTRY
340 RAD :FOR AN=0 TO 1.6 STEP 1/R
360 DX=SIN(AN)*R
380 DY=COS(AN)*R*AR:TI=TILT*DX
400 PLOT X+DX,Y-DY+TI
420 PLOT X-DX,Y+DY-TI
440 PLOT X-DX,Y-DY-TI
460 PLOT X+DX,Y+DY+TI
480 NEXT AN:RETURN
```

Listing 2

```
500 REM
520 REM ***  CIRCLE FILL ROUTINE ***
540 REM ***  X,Y LOCATES CENTER  ***
560 REM ***  R  = OUTER  RADIUS  ***
580 REM ***  R2 = INNER  RADIUS  ***
600 REM ***  AR = ASPECT-RATIO   ***
620 REM ***  TILT = -0.5 TO 0.5  ***
640 REM ***  SET AR & TILT GOSUB ***
660 REM ***  700 FOR ELLIPSE     ***
680 AR=0.846:TILT=0:REM CIRCLE FILL
700 FOR DY=0 TO R STEP 0
720 DYA=DY*AR
740 DX=SQR((R*R)-(DY*DY)):TI=TILT*DX
760 IF DY>R2 THEN DX2=0:GOTO 800
780 DX2=SQR((R2*R2)-(DY*DY))
800 TI2=TILT*DX2:PLOT X+DX,Y-DYA+TI
820 DRAWTO X+DX2,Y-DYA+TI2
840 PLOT X-DX,Y+DYA-TI
860 DRAWTO X-DX2,Y+DYA-TI2
880 PLOT X-DX,Y-DYA-TI
900 DRAWTO X-DX2,Y-DYA-TI2
920 PLOT X+DX,Y+DYA+TI
940 DRAWTO X+DX2,Y+DYA+TI2
960 DY=DY+1.05-DY/R
980 NEXT DY:RETURN
990 REM
```

Listing 3:

```
1000 REM *** TEST CIRCLE ROUTINES **
1020 GRAPHICS 7:? :LIST 1040,1060:?
1040 R=30:X=78:Y=38
1060 COLOR 1:GOSUB CIRCLE
1080 ? :LIST 1100,1120:?
1100 R=60:X=78:Y=38:AR=0.4:TILT=0.4
1120 COLOR 1:GOSUB ELLIPSE
1140 ? :LIST 1160,1180:?
1160 COLOR 3:X=78:Y=38:R=24:R2=20
1180 GOSUB CIRCFILL
1200 ? :LIST 1220,1240:?
1220 COLOR 3:X=78:Y=38:R=14:R2=10
1240 GOSUB CIRCFILL
1260 ? :LIST 1280,1300:?
1280 COLOR 1:X=78:Y=38:R=5:R2=0
1300 GOSUB CIRCFILL
```

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800XL BASIC DISABLER

From ACE of Syracuse.
Author Dave Webster.

If you own an 800XL and are tired of holding down the OPTION button every time you want to boot a non-BASIC program, here's an answer for any disk which can use an AUTORUN.SYS file. I am omitting the technical details, but basically the 800XL uses location 54017 (D301 hex) to determine whether BASIC is present or not. Bit 1 off at that location says BASIC is present. Bit 1 on says that BASIC is disabled. By inserting $FF at this location at boot time, we can eliminate BASIC.

Here are the instructions:

<u>FOR ATARI DOS 2.0S</u>

1. Boot DOS while holding the option button down.

2. Put a diskette containing DOS and AUTORUN.SYS in the drive.

3. Use the following instructions:

```
E          (rename the file)
AUTORUN.SYS,AUTORUN.OLD

K          (binary save file)
AUTORUN.SYS,D301,D301

C          (copy the file)
AUTORUN.OLD,AUTORUN.SYS/A
```

<u>FOR OS/A+ OR DOS XL</u>

1. Boot DOS while holding the option button down.

2. Put a diskette containing DOS and AUTORUN.SYS in the drive.

3. Type these commands:

```
RENAME AUTORUN.SYS AUTORUN.OLD

SAVE AUTORUN.SYS D301 D301

COPY - AF AUTORUN.OLD AUTORUN.SYS
```

You can now use this loader with any disk that uses an AUTORUN.SYS and you don't want to use BASIC.

PROGRAMMING

by Jeff Golden

Howdy. This is a continuing discussion about programming techniques and styles that was originally started in the July newsletter.

The topic for today's discussion is testing, and the relationship between total testing of a program and top-down design.

Why have a formal testing procedure? You have carefully coded your program, and have run it many times. You are positively certain that the program is perfect and is ready for the market. Why do anything more?

This confident attitude towards one's own work is common among programmers. In fact, if a programmer was not confident in his ability to do the job, he probably could not be a programmer.

However, in the case of non-trivial programs, it has long been proven that, regardless of how good the programmer is, there is no such thing as a perfect program. This is not to say that you can not come close to producing a perfect program. What it is saying is that somewhere, sometime, one of your customers will try a data combination that the program will be unable to handle.

Note that the keyword in the above statement was non-trivial. We are not talking about Space Invaders, or check-balancing. We are talking about the programs that make the computer world go round, like payroll, or accounting, or maybe even the one that lands the space shuttle.

If you are a serious programmer, sooner or later, you will be writing and marketing a program upon which profits and/or lives may depend. When someone sues you for the damages that your program has caused, you had better be ready to prove that you were diligent and careful, and most certainly not negligent when producing your program.

The best way to do this is to have a fully documented and comprehensive test plan in place before you release that program upon the unsuspecting public. For the remainder of this article, we will be discussing such a test plan.

The objective of a test plan should be to test every part of a program, every branch, every error routine, every function, with a sufficient variety of data so as to be reasonably sure that the program will perform as advertised.

The key to doing this goes back to last month's discussion on top down design and hypo-charts. The hypo-chart can be used as a base for creating what is called a Test-Plan-Matrix.

In order to fully test a non-trivial program, it is usually necessary to set up several test cases that, together, will exercise every part of the program. The test plan matrix is used to cross-index the functions of the program to the test case that tests that function. The matrix answers the question, "Was every function tested?".

The first step in preparing a test plan matrix is to list all of the program functions down the left side of one or more sheets of paper. These functions are taken from the hypo-charts in the same order as the chart lists them. Usually only two or three words are listed, together with the hypo-chart line number -- just enough information to identify the function. If more detail is needed, the reader of the matrix can refer back to the hypo-chart.

The second step in preparing the matrix is to create a series of vertical columns to the right of the function descriptions. These columns are labeled 1, 2, 3, 4, etc. across the top of the page. The numbers represent test-case-1, test-case-2, test-case-3, etc.

The third step is to design your test cases. These are written out on separate sheets of paper. The test case description includes a section that describes the objective of the test, a section the describes the input for the test, and a section that describes the expected results from the test.

The last step is to fill in the test plan matrix by marking an X at the intersection of the horizontal rows, (functions), and the vertical columns, (test-cases), to indicate that a particular function was indeed tested by a particular test case. When you are finished every function should have one or more Xs marked beside it. This would indicate, if you did it accurately, that your program has been totally tested.

One of the situations that has never failed to amaze me is the number of untested functions that this procedure is able to uncover. Going back to my original statement, creating a matrix after the programmer is "positively certain" that his program

is perfect, invariably uncovers a slew of untested functions including several major bugs.

Will you find all the bugs? Probably not. There always seems to be just one more bug in spite of our best efforts to produce perfect code. You do owe it to your customers, however, to create the best code humanly possible. The test plan matrix is a giant step in this direction.

Next month, I would like to talk about programming languages. See you at the meeting.

Light Pen Tutorial

by Steve Burns

This article will teach you (or try to teach you) how to use a light pen. The example programs are in standard Atari BASIC. The first thing you will need, of course, is a light pen. Let me explain a little bit about how the pen works. Look at the tip of the pen. See that small bulb? That's where the light from the television screen enters and hits the optic sensors. The key word here is light. If no light enters here, (the bulb is dirty or the TV is not bright enough) the pen won't function properly.

If the bulb is dirty, (usually from dust on the TV) just clean it out with a Q-tip.

The fact that the pen won't sense a dark screen can be used to your advantage. If you want to limit the pen readouts, darken the background, and lighten the forground objects in the areas to be sensed. For a practical use, see me sometime about getting a copy of a menu program (my phone# is 530-1830).

The light pen doesn't use a special command like the joysticks do. It, on the other hand, uses two memory locations. These locations are "read only". That means that you cannot POKE a value into the light pen locations. The two locations are 564 (LPENH)--the horizontal value and 565 (LPENV)-- the vertical value. Now for some strange reason known only to the obscure operating system programmers at OSS, the pen values are real screwy. Get this: the vertical register uses scan lines to count, starting at 16 at the top to 111 at the bottom. The horizontal register is even worse; it uses color clocks to count starting at 67 on the left side to 255 near to the right side where it flips over and starts counting to 7 on the right most side. I know, I know, I can here the groans already. Incidently, don't have a hissy fit if the values are not quite the same; all TVs are different. Obviously, since the dot area is very small, some leeway must be given in the program.

Okay. Now, the button on the light pen uses a stick position value. I haven't any idea whether all button values are the same on all light pens, so use STICK(0)<>15 just to be sure.

To locate a point, the easiest way to go is an IF-THEN statement, but the problem with this is that each point is so small thay the best way to go is a FOR-NEXT loop with a nested IF-THEN.

The sample program is probably the best way to demonstrate what I've said so far. Type it in and plug the pen into port #2. RUN it and a white screen with a black dot should appear. touch the light pen to the screen. The dot will follow the light pen around. Press the trigger and the text window changes color. The pen positions are displayed in the text box. "Whoopee!" you say. Well the real value of the program is how it works. Take a look at the listing.

To demonstrate the FOR-NEXT loop application, you'll have to get a copy of my menu program.

One last note: if you don't have a light pen, but you would like one, you can get one from a number of places. I got mine from the Software Source for $20. XL Computing also carries a handmade model.

A short example:

```
10 GRAPHICS 7:SETCOLOR 2,0,0:SETCOLOR 0,0,0:SETCOLOR
4,0,14:REM set up colors
20 C=0:REM text window color
30 H=PEEK(564):V=PEEK(565):COLOR 1:IF STICK(1)<>15 THEN
C=C+1:REM get pen values & check for trigger
40 IF C>254 THEN C=0:REM re-set color if more than 254
50 ? H,V
100 PLOT H-74,V-16:POKE 710,C:COLOR 0:PLOT
H-74,V-16:GOTO 30:REM plot dark then plot light, change
color
```

*** PERSONAL ADS ***

Personal Ads are printed free of charge for any paid up member of DAL-ACE. If you have something to sell (COMPUTER ORIENTED PRODUCT) or need something for your system, send your "copy" to the newsletter address by the 15th of the month for publication.

FOR SALE:

MPC EPROM Programmer	$75.00
NEW Delta 10 Printer	$350.00

CALL Wes Newell at 423-2697

FileManager 800+ (new)	$ 25.00
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5 popular arcade games
All for. $425.00
CALL Mike Caddell at 680-0940

*** SOFTWARE REVIEW ***

by John Pellet

FLIGHT SIMULATOR II

Flight Simulator II from SubLOGIC is the latest flight program for the Atari. It is also the most complex, difficult, and challenging simulation I have seen on any 8 bit machine. It is SubLOGIC's second generation flight simulator and it uses some of the same simulation techniques as the famous Microsoft IBM version. It runs in a 48K machine (just barely) or in a 64K with several added features such as slightly improved graphics, additional simulation factors, course plotter, COM radio, etc.

SubLOGIC provides two disks, the program disk and a scenery disk including Chicago, Los Angeles, Seattle, and New York area airports. The simulator world is roughly 10,000 x 10,000 miles covering more than the continental U. S. with a resolution of about 2.5". It contains about 80 airports in the four areas above (with more to be added later). The program simulates the instruments and flight characteristics of a Piper PA-28-181 Archer II, a single engine, 148 mph, non-retractable gear aircraft with a good set of avionics. Environmental factors simulated include season, time of day, multiple cloud layers, surface and aloft winds, and turbulence. In all, including the plane and the environment over 47 factors are used in the simulation. According to the documentation supplied, SubLOGIC is pursuing the topic of acceptance and approval with the FAA. They also include a 90+ page text titled "Flight Physics & Aircraft Control" along with the 90 page simulator manual, 4 area maps,and a command reference card. Most "serious" programs for the Atari would envy the quantity and quality of the documentation.

Now about the game (or simulation or program). On booting the program disk you are asked whether you want a demo and whether you have a B&W or color monitor. The core program then loads and you stare out at a runway on Chicago's Meigs Field filling half of the screen, ready to take off. 360 degree view is available as is radar. The program will interpret either joystick or keyboard input or any mixture of both for major controls while using the keyboard for minor inputs. The lower half of the screen is filled with the instrument panel. The major instruments on the control panel include airspeed, attitude (artificial horizon), turn coordinator, altimeter, vertical speed, heading, magnetic compass, and digital clock. Minor instruments include a stall warning light, throttle, mixture, flaps, rudder and elevator positions, fuel level, carb mixture, 3 radios, transponder, and oil pressure and temperature. After going to full throttle with some up elevator the plane will take off at about 80 kts (knots). By exercising considerable care you can then fly around as long as your fuel lasts (about two hours).

The program also has an edit mode where you can select from roughly 40 parameters to make your flight as difficult (or easy) as you want. You can set up parameters such as turbulence, cloud layers, aircraft sensitivity and reliability, season, time of day, an many more. You can also set up a special "slew" mode so you can get around the "world" at high speed without having to try to fly (e.g., New York to Seattle). The edit mode also allows you to set up the "wargame" option, where you play the role of the pilot of a 1917 biplane and try (and I mean try) to shoot down enemy pilots, including aces while bombing enemy targets. So far I have been too busy flying to have much success shooting planes or dropping bombs.

The simulation is not, however, perfect. In my opinion, the graphics are really too complex for the Atari. The instruments are really only sharp on a monitor (B&W or color). More importantly, the 3D view is quite vague to me. I have considerable difficulty determining altitude from the screen view alone and so far I keep forgetting that airports are not at sea level (In less subtle english, I keep flying into the ground.). Also, the disks are both protected and on my copy the protection scheme crashes disk access about 10% of the time after the initial load. The program is disk intensive since entering the edit mode or changing user modes involves reading at least 3 tracks, but the program does not re-access the disk as long as you are just flying around (at least not so far).

In summary, far and away the best, most realistic simulation I have seen on the Atari. If you are looking for a game you may be disappointed in Flight Simulator II from SubLOGIC. I was not and am not. A GREAT program!

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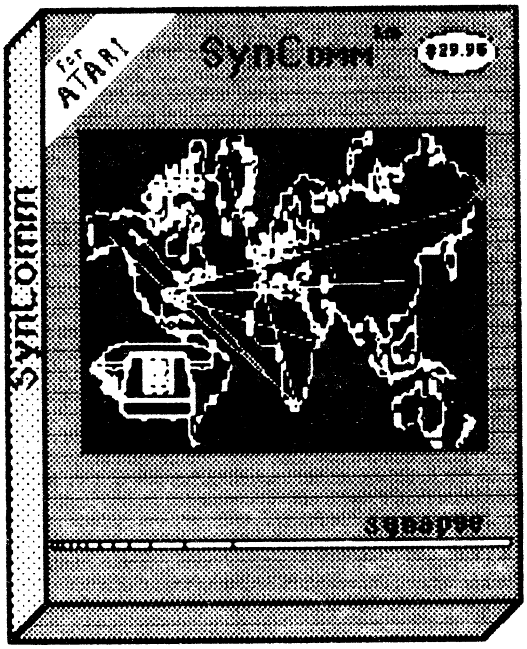

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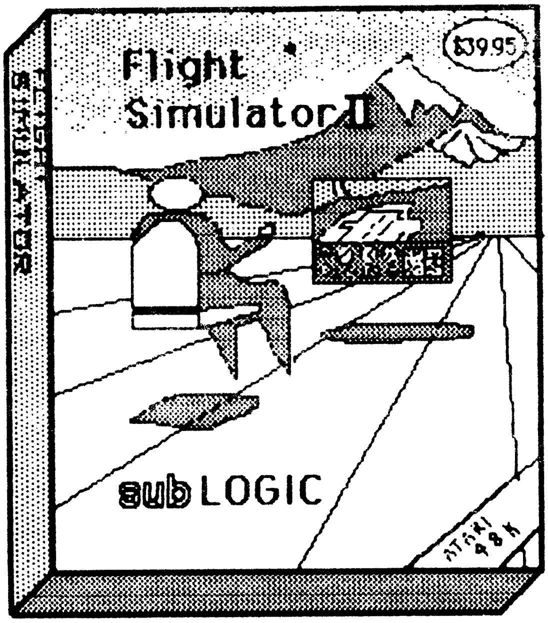

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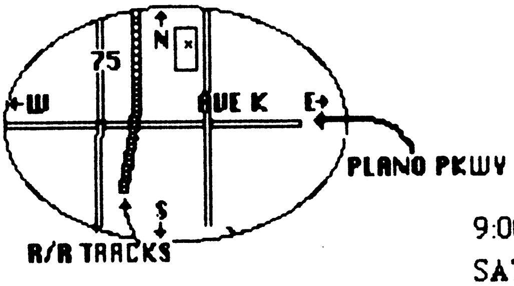

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THE MUSICAL ATARI

(a piano keyboard)

by Harald S. Poelchau

The Atari can make noises of all kinds, and musical ones too. You can convert the Atari keyboard to a musical keyboard, imitating a piano (sort of). The following program shows a simple way to use the keyboard to play tunes.

The approach here is to use look-up tables to convert the keyboard character codes to the pitch codes used in the SOUND command. We first read the pitch numbers from C below middle C for 3 octaves and store them in array S. Next, one could fill a corresponding array with the character codes, and then test for the one that equals the key pressed. This procedure, however, takes too much time for the higher notes, and slows down the response. A better way is to use the key character code as the index for the position in array K which holds the index for the corresponding pitch code in array. S. This assures equal access time for all keys and is much faster.

The keyboard is arranged such that the lowest row of keys represents the lower white keys of the piano. The third row continues with the higher notes. The keys in the row just above the lowest row contain the sharps and flats, or black notes on the piano. The same goes for the top row of keys. So, the Z, X, C keys would sound the low C, D, and E of the piano, and so on upward. S and D woud be C# and D#. The keys with '.' and '/' are middle C and D, and the scale continues with the Q key. If you are serious about using this keyboard it might be useful to fashion a keyboard overlay to show the right notes.

Line 190 opens the keyboard for input. The main loop of the program from line 200 to 260 gets the key input and stops the sound of the previous note (200). 210 prevents an error 9, and 220 is all that is necessary to get the proper index of array S for the SOUND statement in line 240. At the same time we check for unassigned keys. For some added entertainment I am changing the screen color for each note, in line 230. That's all there is to it. Now try your Star Wars theme.

```
100 REM +++ MUSICAL ATARI KEYBOARD +++
110 REM ...  by Harald S. Poelchau ...
120 REM ........ August 1984 .........
130 DIM K(90),S(37)
140 FOR I=1 TO 37:READ X:S(I)=X:NEXT I
150 FOR I=1 TO 90:K(I)=0:NEXT I
160 FOR I=1 TO 37:READ X:K(X)=I:NEXT I
170 GRAPHICS 18
180 POSITION 2,5:? #6;"MUSICAL KEYBOARD"
190 OPEN #1,4,0,"K:"
200 GET #1,A:SOUND 0,0,0,0
210 IF A>90 THEN 200
220 I=K(A):IF I=0 THEN 200
230 SETCOLOR 4,I,8
240 SOUND 0,S(I),10,10
260 GOTO 200
270 DATA 243,230,217,204,193,182,173,162,153,144,136,128
280 DATA 121,114,108,102,96,91,85,81,76,72,68,64
290 DATA 60,57,53,50,47,45,42,40,37,35,33,31,29
300 DATA 90,83,88,68,67,86,71,66,72,78,74,77
310 DATA 44,76,46,59,47,81,50,87,51,69,52,82
320 DATA 84,54,89,55,85,73,57,79,48,80,60,45,61
```

MX-80 GRAFTRAX+ ATARI CODES

PRINTER FUNCTION	DEC CODE	LP. CODE
BACKSPACE	CHR$(8)	CTRL-H
DOUBLE WIDTH (to end of line)	" 14	CTRL-N
COMPRESSED MODE	" 15	CTRL-O
Cancel COMPRESSED MODE	" 18	CTRL-R
Cancel DOUBLE WIDTH MODE	" 20	CTRL-T
Escape code and character	" 27	ESC-ESC
UNDERLINE MODE (N=0=OFF; N>0=ON)	<ESC>45N	<ESC>-N
Set line spacing to 1/8"	<ESC>48	<ESC>0
Set line spacing to 7/72"	<ESC>49	<ESC>1
Return spacing to default 1/6	<ESC>50	<ESC>2
Set spacing to N/216 (1<=N<=255)	<ESC>51N	<ESC>3N
Italic character set ON	<ESC>52	<ESC>4
Italic character set OFF	<ESC>53	<ESC>5
Reset special modes to default	<ESC>64	<ESC>@
Set LF spacing to N/72"(<ESC>"A"N)	<ESC>65	<ESC>A
Set form len to N lines (def.= 66)	<ESC>67	<ESC>C
Turn on EMPHASIZED MODE	<ESC>69	<ESC>E
Turn off EMPHASIZED MODE	<ESC>70	<ESC>F
Turn on DOUBLE STRIKE MODE	<ESC>71	<ESC>G
Turn off DOUBLE STRIKE MODE	<ESC>72	<ESC>H
Sets skip over perf to N lines	<ESC>78	<ESC>N
Resets skip over perf to 0 lines	<ESC>79	<ESC>O
Sets SUPERSCRIPT/SUBSCRIPT MODE	<ESC>83	<ESC>S
Format <ESC>"S"N, N=0=superscript, N>0=subscript		
Reset superscr.,subscr.,unidir.	<ESC>84	<ESC>T
Unidirectional printing (L to R)	<ESC>85	<ESC>U
DOUBLE WIDTH on till turned off	<ESC>87	<ESC>W

The above chart of EPSON printer codes was provided by Bob Dain. It is much more usable than the chart provided in the manual.

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NEWSLETTER PRODUCTION SCHEDULE

DECEMBER Newsletter: Copy should be turned in by November 17th. The production meeting will be Saturday, November 17th at 1:00 pm in the home of Jim Chaney 916 E. Berkeley, Richardson.

JANUARY Newsletter: Copy should be turned in by December 22nd. The production meeting will be Saturday, December 22nd.

--> SIGS <--

"SIG" is the acronym for "Special Interest Group". These groups are composed of members having a common interest in a specialized area of the general computing field. These specialized areas range from languages, to applications and special features of the ATARI. Join in with one of the groups listed below and get more out of your computer! If you would like to start a new SIG, send your name, phone number, and a description of the subject to Jim Chaney, DAL-ACE, 916 E. Berkeley, Richardson, Tx 75081. Deadline for all SIG information is the 15th of the month.

--> FORTH <--

Contact Eric Weern at 245-7429 or Fred Sagor at 424-0291 for information about the November meeting.
FORTH SIG meetings usually consist of two parts: (1) an exchange of information about the FORTH computer language and (2) a general discussion about anything relating to ATARI computers.

--> GRAPHICS <--

Members interested in the GRAPHICS SIG, please contact Sandra Stephens, 827-0493.

--> CP/M <--

CP/M meetings are held the 1st Tuesday after the main DAL-ACE meeting. The next meeting of the CP/M SIG will be held Tuesday, November 6th, at 7:30 P.M. in the home of Jim Chaney, 916 E. Berkeley, Richardson. Any questions you might have, please contact Ed Bohnemann at 495-1803.

--> ADVENTURE SIG <--

Contact Ed Kobus at 492-2922 for additional information on this BRAND NEW SIG.

--> "C" SIG <--

"C" is a language SIG. There will be two Wednesday meetings in November, 11-7 and 11-21 at 7:30 at 916 E. Berkeley. Contact Gary Sewell at 214-727-6567 or Jim Chaney at 231-4402 for information on this BRAND NEW SIG.

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NOON TO 5:00 P.M.
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Personal Classified ads will be published free of charge for current members. Commercial rates are $35.00 per full page (7 1/2" horizontal by 9" vertical), $25.00 per half page (7 1/2" horizontal by 4 1/4" vertical), and $15.00 per quarter page (3 1/2" horizontal by 4 1/4" vertical). Commercial ads must be camera ready. The deadline for all ads is the 15th of the month. Mail or deliver copy to DAL-ACE Newsletter, 4033 Southwestern Blvd, Dallas, Texas 75225.

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